

ELECTRONIC TUBE REFERENCE

14UP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Cathode-ray display tube documented by General Electric with a 6.3 V, 0.6 A heater; the available extracted manufacturer data does not support a narrower functional description.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Cathode Ray
No fixed ratings recorded.

14UP4

The **14UP4** is a 14-inch rectangular glass cathode-ray tube designed for television display applications. It utilizes magnetic focusing and magnetic deflection to produce a high-resolution display. The tube features a high-resolution electron gun designed to provide a small, round spot with a significant depth of focus, an aluminized fluorescent screen to maximize light output, and a gray-tinted faceplate to enhance picture contrast.

Optical and Screen Characteristics

The 14UP4 is equipped with a rectangular, spherical gray faceplate that has an approximate light transmission of 74 percent at its center. The screen utilizes a P4 sulfide-type phosphor, which exhibits the following characteristics:

- **Fluorescent Color:** White

- **Phosphorescent Color:** White
- **Persistence:** Short

The physical screen dimensions provide a nominal 11 1/2 by 8 5/8-inch picture size. The minimum useful screen dimensions are:

- **Diagonal:** 12 3/4 inches
- **Width:** 11 1/2 inches
- **Height:** 8 5/8 inches

Mechanical Design and Physical Dimensions

The 14UP4 is constructed with a glass bulb and can be mounted in any operating position. Its physical and mechanical specifications include:

Parameter	Specification
Over-all Length	16 23/32 $\pm$ 3/8 inches
Neck Length	7 1/2 inches
Greatest Diagonal Dimension	13 5/16 $\pm$ 1/8 inches
Greatest Width Dimension	12 9/32 $\pm$ 1/8 inches
Greatest Height Dimension	9 3/4 $\pm$ 1/8 inches
Approximate Net Weight	10 1/4 pounds
Bulb Number (ASA Designation)	J109 1/2 A or J109 1/2 C
Bulb Contact	Recessed Small-cavity Cap (JETEC No. J1-21)
Base Type	Small-shell Duodecal 5-Pin (JETEC No. B5-57)
Basing Designation	JETEC <u>12D</u>

The anode terminal (recessed small-cavity cap) is aligned with the Pin No. 6 position within a tolerance of ± 30 degrees. The yoke reference line is determined by the plane of the upper edge of a standard reference-line gage (RETMA No. 110) when resting on the cone.

Electrical Characteristics and Basing

The 14UP4 features an indirectly heated cathode. The electrical requirements for the heater and the direct interelectrode capacitances are as follows:

Heater Specifications

- **Heater Voltage:** 6.3 Volts

- **Heater Current:** $0.6 \pm 10\%$ Amperes

Direct Interelectrode Capacitances

- **Cathode to All Other Electrodes:** $0.5 \mu\text{f}$ (approximate)
- **Grid-No. 1 to All Other Electrodes:** $0.6 \mu\text{f}$ (approximate)

Pinout Configuration (JETEC 12D Basing)

The tube uses a 5-pin duodecal base. The pin connections, viewed from the bottom of the base, are:

- **Pin 1:** Grid No. 1 (G1)
- **Pin 2:** Heater (H)
- **Pin 10:** Grid No. 2 (G2)
- **Pin 11:** Cathode (K)
- **Pin 12:** Heater (H)
- **Bulb Cap:** Anode (Anode and Grid No. 3 are connected internally and terminate at the recessed small-cavity cap)

Operating Ratings and Typical Conditions

The maximum ratings for the 14UP4 are established under the design-center system. All voltage values are measured with respect to the cathode.

Design-Center Maximum Ratings

- **Anode Voltage:** 14,000 Max Volts DC
- **Grid-No. 2 Voltage:** 500 Max Volts DC
- **Grid-No. 1 Voltage:**
 - *Negative-Bias Value:* 125 Max Volts DC
 - *Positive-Bias Value:* 0 Max Volts DC
 - *Positive-Peak Value:* 2 Max Volts
- **Peak Heater-Cathode Voltage:**
 - *Heater Negative with Respect to Cathode (during warm-up period ≤ 15 seconds):* 410 Max Volts
 - *Heater Negative with Respect to Cathode (after warm-up period):* 180 Max Volts
 - *Heater Positive with Respect to Cathode:* 180 Max Volts

Typical Operating Conditions

Under typical operating conditions, the tube is operated with the following parameters:

- **Anode Voltage:** 12,000 Volts DC
- **Grid-No. 2 Voltage:** 300 Volts DC
- **Grid-No. 1 Voltage (for visual extinction of focused raster):** -28 to -72 Volts DC
- **Focusing-Coil Current:** Approximately 105 Milliampere DC

The typical focusing-coil current is specified using a RETMA focusing coil No. 109, positioned such that the distance from the yoke-reference-line to the center-of-air-gap is 3 1/4 inches. This is also the recommended position for the center of the focusing field.

Circuit Constraints

- **Grid-No. 1 Circuit Resistance:** 1.5 Max Megohms

Operating the tube below the recommended typical anode voltage will result in decreased brightness and focus quality. In general, the anode voltage should not be operated below 10,000 volts.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1968 General Electric Co

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1968 GENERAL ELECTRIC CO

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltageNominal	6.3 V	—
HeaterOrFilamentCurrentNominal	600 mA	—

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes,
and their source documents.

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker